

(19)



JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: **2004031843 A**

(43) Date of publication of application: **29.01.04**

(51) Int. Cl.

**H01L 33/00**

(21) Application number: **2002188906**

(22) Date of filing: **28.06.02**

(71) Applicant: **KYOCERA CORP**

(72) Inventor: **YAMADA RYUJI  
MINAGAWA HIROYUKI**

(54) **LIGHT-EMITTING DIODE**

COPYRIGHT: (C)2004,JPO

(57) Abstract:

PROBLEM TO BE SOLVED: To provide a light-emitting diode, which has simplified manufacturing steps, improved manufacturing yield, and a spectroscopic characteristic that enhances the efficiency of the light utilization.

SOLUTION: The light-emitting diode comprises a spectroscopic material member 33, in which a fluorescent substance 32 is mixed in a transparent substance 31, and a semiconductor light-emitting element 34. The semiconductor light-emitting element 34 and the spectroscopic material member 33 are separated to constitute the diode such that they are arranged to keep a prescribed mutual distance. The spectroscopic material member 33 is coated with an optical thin film 51 that transmits the light ray radiated by the semiconductor light-emitting element 34 and reflects a part of the light ray which is radiated by the fluorescent substance 32 and proceeds toward the semiconductor light-emitting-element side so that the reflected light ray proceeds in the forward direction.

